

## Database normalisation and design

### DATABASE SCENARIO

**Read chapter 43, from page 364-373 in your textbooks, or any reputable online source to ensure you have a good understanding of the topic then attempt to normalise the information below. You should also use any other resources you can find (books/internet). You should list these as cited sources.**

Todd's Tyres is a small business which supplies new tyres to company car fleets and car hire firms.

When a car is brought to Todd for the first time, the following information is recorded: car registration number, company name, type of tyre fitted. Each time a car has new tyres fitted the date, car mileage and number of tyres fitted is also recorded. The system also allows mechanics to add a comment about the car if they have spotted another problem.

Todd gets his tyres from 3 different suppliers. He gets an updated price list each month; he adds his fitting costs to the price list to produce customer invoices. Some customers get a 5% discount before VAT is added to the bill as they have negotiated this discount due to the volume of cars they have. Todd also keeps details of the fleet manager for each company in case of any problems.

Type	Manufacturer's Code	Customers' Price(ex VAT)
155/80S13	P1000	£36.00
165/80S13	P3000	£39.00
155/80S14	P5000	£85.50
165/80S14	P7000	£64.00

CompanyID	Company Name	Contact Name	Address1	Address2	PostCode	Telephone
EUR01	EuroHire	Mr B Patten	42,Industrial Way	Dean	GU12OLD	01267645345
EXP01	Express Hire	Mrs B Jones	Station Approach	Cambertown	GU135GH	01267377377
MAK01	MakeWay Motors	Mr J Pierce	37 Thatchem Road	Catford	RG213RB	01183672345
MAS01	Masterson Taxis	Ms B Masters	112,New Road	Sunningfield	RG124GH	0118126576
PAY01	Payne Cars	Mr O Heath	12 Old St	Bramley	GU243SW	01234567812
WES01	West Heath Service Engineers	Mr M Gower	221,Gordon Road	West Heath	GU217BH	01932354857

## TASKS

1. Write out a non-normalised list of all attributes about the cars being brought to the garage. (You may find this easier to write out in a table in MS word)
2. Using the information in the scenario and the two tables provided. Create a normalised database structure(3NF) to ensure that all attributes in an entity are directly related to the primary key (PK) or a foreign key from another table (FK)

***HINT: You should have an extra three tables if your database is fully normalised to 3NF (5 in total)***

3. Create an SQL database using your XAMPP pen drives to reflect your database design.
4. Create at least 10 records for different cars which have had new tyres fitted. Use the Data above to populate the database, either by typing in OR using the SQL command INSERT INTO.
5. Evidence required:
  - a. Standard Database Notation showing the normalised database in 3NF.
  - b. Screenshots of the tables in MySQL
  - c. List of all cars, registration numbers and company name who use tyre type 165/80S13.

### **EXTENSION - for kudos and extra marks.**

If you complete all the above and want more to do, go to W3Schools and read up on PHP. Then add forms using PHP to interrogate the database. As well as W3Schools, many good YouTube tutorials also exist.

**Important**

This work is due in for your first lesson back.

It will be marked/assessed.

We will then go through the work in lesson and this will help with your subsequent studies on the same topic.

Don't forget to cite any resources used.